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The Tech.

VOL. III.

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THE TECH.

Published on alternate Wednesdays, during the school year, by the students of the Massachusetts Institute of Technology.

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THE interest shown by the students in the lectures in Political Economy is an indication of the desire to deal intelligently with the problems which will surely come before them as men in after-

life. Why present advantage should be sacrificed to a far-sighted and sound policy which will ultimately give the greatest benefit, is only to be learned by a careful consideration of the grounds of the arguments in favor of both Free Trade and Protection; and ere the term is closed, we shall undoubtedly be better able to judge understandingly what the wisest course for the United States would be,—a question which must be met by every thinking man, sooner or later, in the next few years.

We think it is a very general wish, among the students of the upper classes, that they

might be favored more with President Walker's lectures rather than with individual recitations, although possibly men are kept closer to their work by this latter method.

IN the *interim* occasioned by the retirement of Mr. Little from the position of editor-in-chief, before the present incumbent assumed the responsibilities of the office, Mr. I. W. Litchfield, '85, most generously devoted his time (the vacation just after the Semi's) and energies to the task of getting out No. 8 of the "TECH;" and we wish now, although at a rather late date, to express our appreciation of his labors, and that he may receive the credit which is most justly due him.

MR. THOMAS W. FRY, of '85, has been chosen to fill the vacancy in the editorial board, and enters upon his duties with the present issue. We cordially welcome him, and trust that he will bring to his new duties a store of editorials which shall allow his fellow editors to enjoy a short rest for the purpose of collecting new ideas.

OUR attention was lately called to the gross misuse by the students of the new reading-room, as regards the matter of talking therein. As every one knows, this was the great evil which beset the old library; but it was expected that, on getting into new quarters, the regulations would be more strictly enforced, obliging those entering the room to refrain from all loud talking and noise.

Very many students desire to use the place for study, but at present one might as well adjourn to a stock exchange to compose his thoughts. No one hesitates to talk in his ordinary tone of voice, or at most in a stage whisper, because every one else is doing the same.

We would respectfully suggest that the Registrar enter the room for one or two mornings, and remind the students that, in order to stay there, loud talking must be banished; otherwise, the loud talker. A notice to this effect on the doors or walls would, we think, remind "all ye who enter here" that the first essential requirement of a reading-room or library is — quiet. In the fine library at Amherst College this rule is observed with great strictness, to the consequent advantage of all who use the place as it is meant to be used. We are convinced that it is simply thoughtlessness, in which all are more or less at fault, which is in our case to be overcome.

ONE of the various requirements for admission to the first-year class is that applicants shall have attained the mature age of sixteen. Probably few are excluded by this provision, but unquestionably many enter who fall but little over the line. As certain changes have recently been made in the preparation required, uniformly tending to raise the standard, it has seemed to us at least possible that a similar advance (of perhaps two years) in the age-limit, though entailing occasional hardship, would prove beneficial, both to the student and to the Institute.

As for the latter, the time may have been when it was imperative that all unnecessary obstacles be removed from the path of candidates, in order to maintain the existence of the school. But surely such a time is fast passing away, if not already past.

The case of the would-be student, however, admits of more argument. Many coming directly from high or other preparatory schools approach with more or less reluctance four years more of study, and look forward eagerly to their completion, and the practical pursuit of their respective professions. An enforced delay of two years before entering the Institute would be decidedly irksome, and might direct some elsewhere.

We can only regard this characteristic American haste to "get through" school as a grave

evil. For why should the youth put away his books, and rush headlong into active life before he has reached man's estate legally or mentally? The doctor, the lawyer, the clergyman, seldom enter upon the practice of their respective professions under the age of twenty-four; and why should our graduates begin theirs at twenty or twenty-one? We believe, and wish it were more generally recognized, that the latter — the engineer, the architect, and the chemist — should be liberally educated, as well as the former. Perhaps, however, it is best that the man who *must* hasten to enter his profession young should not be debarred from making early preparation for it. Perhaps, taking things as they exist, the occasional hardship or loss involved by the proposed change would outweigh the incidental good. But even then, while we might not wish the applicant of tender sixteen absolutely refused, we would earnestly advise delay whenever practicable. It is by no means our wish to detract from the well-earned honor, not seldom attained by the younger men, in their work here as well as in after-life; but, writing after careful deliberation, we say, with confidence, that many a boy comes here fresh from the high school, too often with barely enough physical strength to carry him through the daily routine, so learns his lessons as to pass examinations more or less successfully, and in four years takes his degree, still a boy, though of larger growth, with little comprehensive grasp of the principles which he has learned, and less ability to apply them to the solution of the complex problems of practical life.

Either of two directions for self-improvement our subject might have followed by wise use of an extra two years.

First, he might have taken a liberal, classical, or literary course for four years, then in two more his scientific course at the Institute. He might still remain a book-worm, but one far more evenly and symmetrically developed than before.

Or, secondly, he might, on leaving the preparatory school, spend two years in travel or business, as circumstances might dictate; in

studying the world around him, learning men and learning nature; in training his judgment and perceptive faculties; in equalizing most broadly his physical and mental development. In short, he might let the acquisitive faculties and the memory, so often overstrained in the lower schools, lie fallow, — a condition occasionally as salutary for man's mind as for his land. He would then enter his four years' course here perhaps at an immediate disadvantage. But he would have reserve force, staying power, and comparatively mature judgment.

In one respect, especially, the importance of the last-named quality cannot be overestimated. At the beginning of his second year the youth is confronted with one of the important questions of his life, — what course shall he take? How often is his decision determined by a whim, a notion, a prejudice! At no point is sound judgment more necessary; and, if one has it not, fortunate indeed may he consider himself if troublesome after thoughts never rise to call in question the wisdom, or at least, to disturb the satisfaction of his choice.

FROM what we learn from our exchanges and the daily papers, it appears to us as if the students of our various colleges were in a very belligerent frame of mind just at present.

At somnolent Hamilton, the Senior class are in open rebellion, and have "bolted" to a man, while there is some talk of the other classes also leaving. In our opinion the trouble here is simply a misunderstanding, which should have been settled long ago. At Pennsylvania the annual bowl-fight degenerated into a common street scuffle between the students and the police. Union College is in a sea of trouble, but here the difficulty is due to a disagreement among the Faculty. And now the Princeton students are at loggerheads with the Faculty on account of the new dean, and the system of espionage which he has introduced. Elsewhere the intercollegiate athletic rules, which have acted somewhat as a firebrand, are arousing angry discussions. What a contrast is this with the placid and quiet life at the Institute!

A Translation.

[From the German of Heinrich Heine.]

IN the north a pine-tree stands
Alone on a barren height;
Slumbering, the snow and ice
Clothe it in mantle of white.

It dreams about a palm tree,
Far off in morning land;
Lonely, silent, and grieving,
On a parched and rocky strand.

C. S. R.

A Trip Around Oahu.

OAHU is the best known of the Hawaiian Islands, owing to the fact that it is upon this island that Honolulu is situated, yet there are many portions of it that are seldom visited by whites.

During the last of December, 1882, and the first of January, 1883, I made a complete circuit of the island, in company with J. T. Perryman, of the Hawaiian Government Survey.

It was a clear, sunny morning on which we began our journey, leaving Honolulu at 9 o'clock, A. M. For the first five miles our course lay over the level, coral plains southeast of the city, and over these we quickly passed at a gallop. Then the road became rougher, and our speed lessened. On our right was the ocean, with often groves of cocoanut-trees skirting the shore, while to our left, the country gradually sloped up to the summit of the mountain range, though it was everywhere cut by deep valleys, by whose mouths we rode. Some of these were broad, and looking up them we could see occasionally a house with a patch of bananas beside it; others were very narrow, being only sufficiently wide to admit the passage of a stream.

Passing inland of Diamond Head, a very picturesque crater-cone, we crossed the low ridge which connects it with the main mountain ridge, and descended upon the plains of Waialæ. On these near the sea were several cocoanut groves, and a few very pretty houses with broad *lanais* or verandas. Then we came to another large crater-cone, Koko Head, and skirting this on its *mouka* or landward side passed down on to an-

other plain, which was almost entirely barren. Beyond this, the main mountain ridge runs directly into the sea, and seems to bar our passage entirely. The trail which we were following led up a narrow, rocky valley, along which our horses picked their way with extreme difficulty. At the head of the valley we found ourselves directly on the summit of the range, in one of its lower portions, and on the edge of a perpendicular precipice of about six hundred feet in height, at whose base directly below us the waves dashed with a tremendous roar. At first, our horses utterly refused to descend along the steep, zigzag path, where a mis-step would have precipitated them to the depths below, but by urgent treatment we induced them to descend. This was by far the worst place I have ever taken a horse, and we were both thankful when we were safely on the shore below.

We found the scenery beyond this point entirely different from that through which we had passed. The mountain ridge presented one bold precipice, almost and in fact often quite vertical, stretching away as far as the eye could reach; its height varying from six hundred to more than three thousand feet. Between its base and the sea for the first few miles there was scarcely more than room for a road, after which it gradually broadened into low, level plains a mile or more in width, which were covered with fields of sugar-cane. At 3 P. M. we rode into Cummingsville, the largest of the plantations, and there rested awhile, being entertained very pleasantly by Mr. Cummings's courteous clerks.

After leaving Cummingsville we crossed two small ridges, which furnished some very fine diversified scenery. Just at dusk we rode up to the plantation house in Kaneohe, where we remained over night. At this place we were only nine miles from Honolulu, though we had ridden twenty-eight miles. Resuming our journey the next morning, we passed through the plantation of Heeia, and through large rice-fields cultivated by Chinese. Some of the rice was nearly ripe, while other portions were only just planted. It was amusing to notice the irregular and very

crooked rows in which the Chinese plant all their grain and vegetables. They do this in order that, if ill-luck should attack one side of a field, it will get lost before reaching the other side.

Our road was smooth and fit for carriages throughout all the day's journey, but the scenery was not quite so picturesque as that of the day before. The high precipice was still on our left, but it had retreated some distance inland. At 3 P. M. we reached Laie, the Mormon Mission, and obtained accommodations for the night at the Mission-house. Here we found just the reverse of the usual condition of affairs in Mormonism, there being only one woman and twelve or fifteen men. The latter were all missionaries, who had come here, principally from Salt Lake City, to propagate their faith among the Hawaiians. We were cordially entertained, and given the best they had, though they live rather frugally.

Our next day's journey was at first over low coral plains, which skirt the northeastern end of the island, and on which we rode around the end of the great precipice, which there is diminished to a very low elevation.

Along the shore we found the breakers rolling in with great force, forming the finest surf-scene I have ever witnessed in clear weather. We passed the entrances to some very pretty valleys, and in crossing the stream which issued from one, my companion and his horse were nearly engulfed in a treacherous piece of quicksand.

At noon we rode into Waialua, a very pretty village, where we were very pleasantly entertained for an hour by Mrs. Emerson, the widow of one of the earlier missionaries. We were now only twenty-eight miles distant from Honolulu, by the direct road across the island, but we continued on the almost untrodden trail which passes around the northwest extremity of the island, leading at first through large fields of cane, then across broad plains, where large herds of cattle were feeding, and finally entering a desolate, barren region, where our horses found it very difficult to pick their way through the masses of

loosely piled bowlders which thickly covered the entire ground. Here again we were passing along the base of a precipice about four hundred feet high, which forms the northern limit of the Waianae mountain range. For several miles we slowly travelled over the loose rocks lying at its base, and at four o'clock turned the extreme point of the island, which is known as Cape Horn, owing to its narrow wedge-shaped form which projects far into the sea. Looking back we could see nearly the whole north coast of the island, while in front we could see the western coast for nearly twenty miles.

Our road had previously been rough, but nothing in comparison to that which we passed over for the next five miles. The precipice came nearly to the water's edge, there being a steep, sharp slope, from half its height to the sea. On this slope, just out of the reach of the breakers, a narrow path had been dug, along which I should not have dared to pass in the night. Riding here in the rays of the setting sun, the tall, dark cliffs on one side, the seething, roaring waves, whose spray occasionally reached us on the other, we saw a scene of wild grandeur which will never be forgotten. Darkness was approaching, and we hastened as much as possible, for to be caught in it meant camping in this desolate spot. Just at dusk we came out into a small valley, where we found a white man residing, who promised us the best he had, which, though rather poor, we were glad to accept. On entering his house we found that he had a native wife, and that he was living in nearly the native style, having no tables, no chairs, no knives or forks. Our supper of *poi*, *paiai*, roast pig, and roast chicken was placed on a cloth in the centre of the floor, and we sat around it cross-legged like Turks. This man was the son of a famous Judge, and his mother belonged to one of the best families in our Southern States. A college graduate himself, he was conversant with all the topics of the past and present, yet he seemed perfectly contented with his present lot.

The next morning we began our last day's journey, soon getting into cane-fields in the

larger valleys. At noon we came in sight of Honolulu, but having to make a wide circuit around the Pearl Lochs, we did not arrive there till evening. The whole of this portion of our ride was over broad, low plains, with only a few small elevations. The Pearl Lochs by which we rode are a series of large lakes in the coral plain, connected with the ocean by one narrow inlet.

G. H. B.

The Restoration of the Liebig Statue in Munich.

ON the morning of Nov. 6, 1883, it was discovered that the statue of Liebig in the Maximilianplatz, in Munich, erected by contributions from chemists in all parts of the world, had been defaced by a large number of black spots. The authorities, thinking it had been done with street mud, attempted to have it washed off; but the only effect produced was the removal of the crust on the spots, thereby rendering the discovery of the nature of the stains more difficult.

A close inspection on Nov. 9, by a commission, consisting of Professors M. von Pettenkofer, Adolf Baeyer, and Clemens Zimmermann, showed that the statue was disfigured by about three hundred black spots, mostly round, and the size of a hazel-nut. All these spots, with the exception of one over the right eye, were on the left side of the statue, and were probably made with the fingers, by a person standing on the right-hand side of the pedestal. On the granite pedestal were a number of small spots and one broad band.

A qualitative examination of a small spot showed the presence of manganese, and in a small piece of marble cut by the sculptor from the statue, silver was found. This marble had been penetrated several millimetres. According to analysis, therefore, of the stain, the spots consisted of silver, and manganese (hydrated peroxide), and were probably made by a mixture of potassium permanganate and silver nitrate.

It was necessary to find a method by which these substances could be completely removed, without in the least injuring the marble or granite. Experiments were made in the laboratory

on blocks of marble, which, after moistening with solutions of potassium permanganate and silver nitrate, showed in one to two hours black spots exactly like those on the statue. Experiment soon showed the way to remove these. The principle involved is that of converting the silver and manganese into sulphides, and solution of these in potassium cyanide.

The spots produced in the laboratory were entirely removed by treatment with yellow ammonium sulphide, and then with a concentrated solution of potassium cyanide. On Nov. 20, two spots on the statue were treated. These were covered with a paste of clay saturated with ammonium sulphide, and renewed after twenty-four hours' standing. At the end of the second twenty-four hours the spots were washed with water, and treated with a paste of clay and potassium cyanide. After four hours the stain was much fainter, and at the end of twenty-four hours it was entirely gone.

The method was then applied to the remainder of the spots, and by Nov. 28 all except the face was restored. Very cold weather prevented work, so that the end was not reached until Dec. 13, when the statue appeared in its original condition.

The removal of the spots from the granite pedestal was comparatively simple, only requiring repeated application of the potassium cyanide paste.

During the progress of the work, the statue was inclosed in a rough shed.

(Berichte der deutschen chemischen Gesellschaft, 1884, p. 230.)

W. S. A.

The Senior ball will be held on April 4, at Odd Fellows Hall.

The death of another man, eminent in the scientific world, has lately caused general regret. Arnold Guyot, a Frenchman by birth, came to this country when a young man, and for many years has been a professor at Princeton. His admirable geographies have long been in general use in the schools. In him the world has lost one of the acutest of observers, and most powerful of generalizers.

The Sophomore class supper last Friday evening, at Young's, was an important event in the history of the class. Plates were laid for sixty-two, and all but two of that number were present. The gastronomic part of the exercises having been finished, the wooden spoon was awarded to Mr. Lynde, for having eaten the most, and the toasts were replied to with the usual number of puns, good and bad. Mr. Leach officiated as toast-master in a highly satisfactory manner. The remainder of the evening was passed in singing college songs, etc. The Freshmen, who had been having a supper at Parker's, did a very pretty thing by marching in a body to Young's and cheering '86, which was heartily responded to by the latter class.

The "2 G." Society, at an adjourned meeting at Young's, last Tuesday evening, took measures for the procuring of certificates of membership, *i. e.*, a "shingle," and transacted other business. Papers were read by T. W. Robinson, '84, on "Accidents and their Causes in Deep Mines," and on the "Treatment of Copper Ores at the Rio Tinto Mine in Spain," by C. S. Robinson, '85.

The regular monthly meeting of the P. S. T. was held at Parker's, Friday evening, Feb. 29. Mr. A. P. Cone, '85, was initiated, after which an interesting paper upon "Hydrography" was read by Mr. Bothfeld, '84.

A special meeting of the Athletic Club was held in Room 4, Monday, the 3d inst., to take action upon the resignations of Messrs. Bunce, '84, and Morse, '85. Mr. T. Stebbins, '86, was elected secretary, and Mr. Spring, '85, treasurer.

The '85 Class supper promises to be one of the most enjoyable occasions of the term. An attendance of over fifty has been insured, and the committee request that all who can will make it a point to be present.

The first regular meeting of the Freshman Society was held at the Parker House, on Friday evening, March 7. A large number were present, and an enjoyable musical and literary entertainment was presented.

Department Notes.

The *American Engineer* for Feb. 22 contains a very interesting account of the inclined railway at Glion, Switzerland. It was built by M. Riggenbach, who was also the designer of the railroad up Mt. Rhigi. The incline is six hundred and seventy-four metres long, with a rise of three hundred and twelve. At the upper end the grade is fifty-seven per cent, while at the lower end it is not more than thirty. The connection is made by a couple of vertical curves, the line being straight throughout.

The system consists of two cars, attached to the ends of a cable, one of which ascends as the other descends. The motive force is supplied by the excess of weight of the descending car over the ascending one. The weight is secured by the alternate filling and emptying of a cistern placed under the car, which contains 7,000 litres of water. A rack is constructed in the centre of the track, but is used only to regulate the speed of the descent.

It is a somewhat curious fact that the Institute buildings stand nearly midway between the two tallest edifices in Boston, namely, the Central Church, corner of Berkeley and Newbury Streets, which has a spire two hundred and thirty-six feet above the street, and is the tallest in Boston, and the tower of the new Old South, on Dartmouth Street, which is two hundred and thirty-five feet high. The height of some of the other spires are as follows: Park Street Church, two hundred and seventeen feet nine inches; Hollis Street Church, one hundred and ninety-six feet; Old South Church, one hundred and eighty feet; and Christ Church, Salem Street, one hundred and seventy-five feet.

Experiments have been made within the past weeks with the telephone apparatus of a Michigan inventor, which he thinks may be utilized for talking across the ocean. He claims to have solved the problem of adding a battery, to a line almost without limit, by using simultaneously a number of independent local batteries of induction coils and deviating points, and says he can avert the danger of burning

batteries by increasing the number of cells. The experiment was tried over three hundred and twenty miles of wire between New York and Washington. Morse instruments were working close to the telephone, and the induced current was so strong that a message going over the instrument could be read through a telephone receiver. The inventor expects to try twenty Paine transmitters on the new Benet-Mackey ocean cable, and thinks the current generated will be sufficiently strong to overcome resistance.

ISAAC TODHUNTER, M. A., F. R. S., the great English mathematician, is dead at the age of sixty-four. His text-books have a world-wide reputation, those on Analytic Geometry and the Calculus being familiar, by name at least, to most of our students.

THE total production of pig iron and Bessemer steel in the United States, in 1883, was 5,145,972 net tons, against a total production of 5,178,122 net tons in 1882, showing a decrease of 31,150 tons.

URANIUM has lately been discovered in Colorado. The ore also contains cobalt, nickel, and bismuth, with minute quantities of gold and silver.

The proportion of uranium is only about two and a half per cent; but since this metal is worth \$800 a pound, the discovery is a valuable one.

An '84 Miner recently analyzed one of the counterfeit silver dollars which are more or less prevalent at the present time, and found it to contain lead and antimony. It had a clear ring, but when broken the fracture had a brittle, crystalline appearance.

According to the *American Machinist*, the principal industrial schools in this country which have iron-working shops connected with them are the Massachusetts Institute of Technology; the Worcester Free Institute of Industrial Science; the Stevens Institute of Technology, Hoboken, N. J.; Cornell University, Ithaca, N. Y.; and Washington University, St. Louis, Mo.

Noticeable Articles.

NINETEENTH CENTURY. February. "Christian Agnosticism," by the Rev. Canon Curteis. "A hundred books of (so called) 'origins' issue from the press. . . . It is very easy to imagine some imperturbable savage — say a Zulu of Natal or an English school-boy — asking the most reprehensible questions as to what happened before the 'origin' began. Such a critic would be sure to express a languid wonder, for instance, as to *how* the primeval star-mist got there; or he would casually inquire *whence* the antediluvian thunderbolt, which introduced vegetable life upon this globe, procured its vegetation; or he would ask *why* Mr. Herbert Spencer's aboriginal divine, roused from his post-prandial nightmare, should have selected a 'ghost' out of the confused kaleidoscope of his dreams as the recipient of divine honors; or why human dreams should produce a religion, and bestial dreams produce none. . . . Agnosticism, if allowed to develop freely on its own lines, must needs become a 'Christian Agnosticism.' "

FORTNIGHTLY. February. "The Guide of Islam," by Capt. C. R. Conder, R. E. "Who and what is the Mahdi?" is the question which he answers.

CONTEMPORARY. February. Notices of Green's "Conquest of England," Seeley's "Expansion of England," Col. Muir's "Annals of the Early Caliphate," and Sir Wm. Stirling Maxwell's sumptuous book, "Don John of Austria."

BLACKWOOD'S. February. "A Lady's Ride through Spanish Honduras."

THE CENTURY. March. "Henry Irving," by J. R. Towse. "Von Moltke," by Helen Zimmern, with portraits. "Old Public Buildings in America," illustrated. "Notes on the Exile of Dante," by Sarah Freeman Clarke, illustrated. W. P. A.

"Experimental Determination of Wave-Lengths in the Invisible Prismatic Spectrum," by S. P. Langley. *Silliman's Journal*, March, 1884.

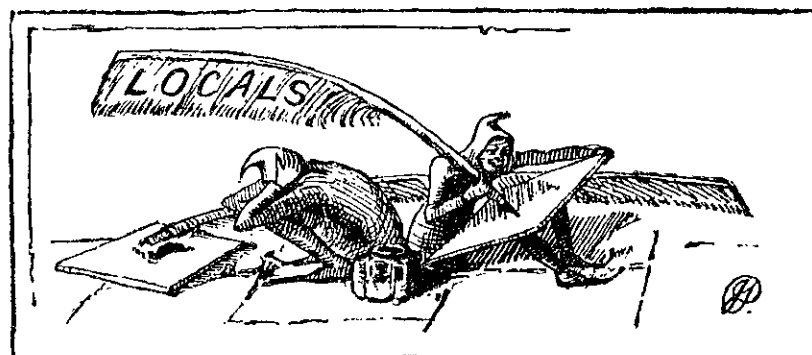
"Tests of Electric Light Systems at the Cincinnati Exposition." *Science*, Feb. 15, 1884.

Editorial comments on the same. New York *Electrical Review*, Feb. 28, 1884. New York *Electrician*, March, 1884.

"Direct Reading, Electrical Measuring Instruments," W. E. Ayrton and J. Perry. *Telegraphic Journal*, Feb. 16, 1884.

"Progress of Electrical Science during 1883," J. Trowbridge. *Science*, Feb. 29, 1884.

C. R. C.



Is the new building to receive a name?

The '86 Civils are now taking topography.

Another man has been asked in the hall "if this is a museum."

The first-year Architects have begun to receive instruction in shade and shadows.

The subscription papers for the Senior ball already show a goodly array of names.

Prof. Niles says that '86 keeps better notebooks than any class he ever had.

"Never carry *water* in a bottle," was the recent remark of one of our professors.

The second-year Electricals have begun engine lathe work.

The class in Advanced German began Faust last Saturday, having finished Maria Stuart.

J. G. Hadley's fame still lives. A Freshman recently asked one of the assistants in the laboratory for J. G. Hadley's notes on stirring.

The latest phenomenon is a Freshman in the quantitative laboratory who has completed twenty-five analyses since the semi-annuals.

Davenport, Spaulding, and Cushing are the Senior ball committee from '87. Now is the time to subscribe.

The rumor that the popular Mr. Bunce, '84, is to leave the Institute is an error. He has no present intention of so doing.

Eleven second-year Civils daily practise in the gymnasium. Evidently getting up muscle for levelling.

The Glee Club sang at the Highlands last Thursday evening, instead of the week before, as it was announced.

Wanted: Telephonic communication between the two buildings; it is especially needed between the mining and quantitative laboratories.

'86 promises to retrieve itself, and head the list in the Senior ball subscriptions. We are surprised to find '85 at the end of the list. What is the trouble? '85 used to be foremost in such things.

[*Literal translation by Junior:*] "Das Zodiak-licht zeigte sich unter der Milchstrasse," — "The Zodiacal light showed itself down on Milk Street."

The classes in mineralogy will begin field-work as soon as the weather permits. Among other places, the interesting localities of Bolton and Fitchburg will be visited.

Some of the Architects feel that their knowledge of architectural history suffers from the small amount of time that is given to it in the department.

Photographs of the different departments of the workshops have been taken, and may be obtained of Mr. Maxwell, the assistant in wood-work.

The second-year class in mechanism are now studying textile machinery under Mr. Fisher, in place of the shop machinery under Mr. Schwamb.

The reappearance of the sun, after the long spell of foul weather, was joyously hailed by the second-year Mechanicals, as it enabled them to make their long-delayed blue copies.

We would remind the members of '84 who have not been to Ritz & Hastings's for their class photographs that but a few days now remain, as by the terms of the contract all sittings must be made and all proofs accepted before next Saturday.

A Freshman in the chemical laboratory asked an assistant if he might be excused from performing an experiment in which it was necessary to use a watch-glass, as he did not wish to take the crystal from his watch.

It would be saying too little to say that the lady at the chemical supply-room was greatly surprised when a Freshman asked if she "would give him a bath." Further developments, however, showed that it was only a sand-bath that he meant.

Mr. Billy O'Brien is whitewashing coal for the Cincinnati, Hamilton and Dayton Railroad. He however denies the report that he has given \$150,000 to the Cincinnati Home for the Friendless.

The Freshmen are a very active class; they have formed a society, and well support the Athletic and Glee Clubs, and show many other signs of life. But what has become of their tennis club? Has it met the fate of its predecessors?

The Senior Mechanicals will probably make a test on one of the Institute boilers next week. Observations will be taken night and day for a week, the time being divided into "watches" of eight hours each for this purpose.

The Glee Club concert, which is to be given in April, will probably take place in Association Hall. It is hoped that dancing can be arranged for after the programme.

Bismarck making war against the American hog will find the pen is mightier than the sword.

The second exhibition drill of the Cadets is to be held on Saturday afternoon, March 29. The committee in charge consists of Locke, Haskell, Shepard, Spaulding, and Underhill, from whom tickets can be procured; and, as the number is limited, those desiring them should get them at once. Dancing after the drill.

The Faculty has petitioned the city government for leave to erect storage vaults on the site of the old workshops. These latter are to be torn down as soon as the weather is favorable. It is then proposed to build storage vaults for coal, ores for the mining laboratory, etc. If this is done, the vaults will be below the level of the street, the space above being filled in and graded to the level of the adjacent grounds.

Three professors were talking about the metric system, when one jokingly remarked that he did not believe that any of them could pass the entrance examination in that subject; said one, "Now, I'll wager neither of you can tell me what a *stere* is." "No," replied one of the others, "I shouldn't want to try, for probably I should make a 'bull' of it."

Athletic Notes.

IN spite of the unpleasant weather Saturday afternoon the Athletic Club games were an entire success. There were about three hundred persons present, among whom were many ladies. A great part of its success was due to the efficient management of Mr. Baker, '85, who acted as clerk of course.

The first event was Indian club swinging, for which H. F. Hill, '87; H. M. Steele, '87; and Percy Griffin, '84, appeared. Messrs. Hill and Steele first swung, Mr. Hill winning the heat. He then contested with Mr. Griffin in the second heat, which was won by Mr. Griffin. Mr. Hill taking second medal. In the running high jump, W. L. Dearborn, '86; Solomon Sturges, '87; and W. H. Ellis, '86, took part. This was won by Mr. Sturges with a record of five feet.

The next event was the fencing, in which A. J. Plaisted, '85, and W. H. Low, '87, engaged. The medal was taken by Mr. Low with a score of 7 to 0. C. F. Holmes, '87; A. H. Twombly, '87; and S. Sturges, took part in the standing high jump, which was won by Mr. Twombly, record four feet six and one half inches.

In putting the shot, W. L. Dearborn, '86; H. F. Hill, '87; P. R. Fletcher, '86; and Paul Winsor, '86, contested. Mr. Fletcher won the event with a record of thirty-three feet seven inches; Mr. Winsor second.

In the first heat of the middle weight tug-of-war, the Harvard Law School team, J. H. B. Easton, anchor, T. C. Bachelder, C. P. Curtis, Jr., and F. A. P. Fiske, pulled the Harvard '84 team, R. M. Appleton, anchor, J. B. Walker, A. R. Crane and C. W. Baker. The Law School got the drop and by several heaves pulled the '84 team off the cleats in about three minutes. For the parallel bars P. Griffin, '84; E. J. Caughey, '87, and H. M. Steele, '87, appeared. The judges declared Mr. Steele to be the winner, with Mr. Caughey second.

The next event was the running high kick for which H. F. Hill, '87; A. H. Twombly, '87; S. Sturges, '87, and W. B. Douglass, '87, appeared. The kicking of all was excellent and the medal

was taken by Mr. Hill, with a record of eight feet three inches, Mr. Douglass being second.

In the fence vault H. F. Hill, '87; W. L. Dearborn, '86; H. M. Steele, '87, and A. H. Twombly, '87, were entered. Messrs. Hill and Dearborn were tied at six feet two inches, but the medal was given to Mr. Dearborn on account of his handicap. The final heat of the tug-of-war was between the Harvard Law School team and one from the M. I. T. Athletic Club; P. Winsor, anchor; C. C. Pierce, A. S. Garfield, and A. G. Robbins. The Institute team gained about six inches on the drop, which was reduced to two by a heave of the Law School. The remainder of the heat was one of the closest and most exciting ever seen in the gymnasium, the ribbon vibrating back and forth in perilously close proximity to the line. The heat was finally won by the Institute by only one inch.

F. E. Sands, '85; and Guy Kirkham, '87, appeared in the feather weight sparring, which was won by Mr. Kirkham. The first bout of the light weight was between E. E. Blodgett, H. A. A., and T. R. Kimball, Y. M. C. A. Mr. Blodgett appeared to be in much better condition than Mr. Kimball and was awarded the bout. The first heat of the middle weight was between Gordon Woodbury, H. A. A., and C. C. Pierce, '86. Mr. Woodbury was evidently too much for Mr. Pierce and was awarded the bout.

In the second bout of the light weight, Charles Strauss, S. E. A. C., and H. W. Carnes, Y. M. C. A., appeared. Mr. Strauss was awarded the bout, but on account of an injury to his hand was unable to box with Mr. Blodgett, who was therefore awarded first prize, Mr. Strauss being second. In the final heat of the middle weight, between Gordon Woodbury and H. P. Duker, '87. Mr. Woodbury was awarded the event.

The officers of the meeting were: — Clerk of Course, D. Baker, '85; referee, R. J. Roberts, Y. M. C. A.; judges, H. D. Bennett, '84, and E. Worthington, Jr., '85. For the sparring: — Referee, Mr. J. Boyle O'Reilly; judges, Mr. J. P. Hawes and Dr. Wm. Appleton. Judge of Fencing, R. D. Smith, H. A. A. Stewards, R. Charles F. Spring, '85, Paul Winsor, '86, and P. R. Fletcher, '86.

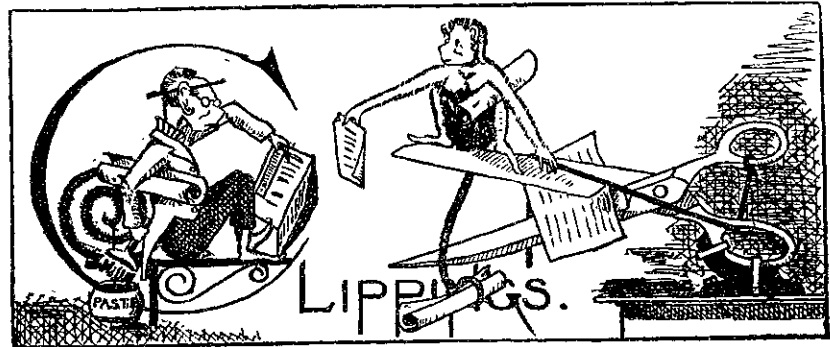
The College World.

HARVARD. — The students are nearly unanimous against the intercollegiate athletic resolutions. A petition has been circulated and extensively signed, and other measures have been taken to induce the Faculty to rescind their action in the matter. — The Historical Society and the Finance Club are showing much life and enterprise this year. — The abolition of morning prayers is being advocated. — The vote of the Faculty on the athletic resolutions was twenty-three to five in favor of them. — The *Lampoon* begins Vol. VII. well.

PRINCETON. — Sparring at the winter athletic games has been forbidden by the Faculty, on the ground that the sport is too brutal. — Three of Princeton's oldest professors have died within twelve months. The Senior class numbers ninety men. — A project is on foot to erect a building for the Art School.

COLUMBIA. — Is Columbia to have an annex, after all? It certainly seems so. Reed College, a new female institution, was incorporated recently in New York. Four of the incorporators are trustees of Columbia, and a majority of the board are Episcopalians. President Barnard of Columbia, an incorporator of Reed College, stated that the two institutions would be brought very nearly together. Professors of Columbia would be assigned to teach in Reed College, the standard would be the same in both, and in the end the male and female classes would be united to save trouble, and coeducation, would be firmly established. — The Law school contains twenty-one graduates of Princeton twenty-two of Harvard, twenty-five of Yale, and forty-nine of Columbia. — A new sidereal clock has just been mounted in the observatory. — There is a class of two members in Arabic.

CORNELL. — A series of ten lectures on the American revenue system is being delivered. — The net proceeds of the Junior ball are to be given to the navy. — A base-ball association has been formed. — Minister Lowell is to represent Cornell at the three hundredth anniversary of the University of Edinburgh.



A goat stood by the orchard wall —
A goat serene and fat :
He spied a little distance off
On the ground a white felt hat,
And in a jiffy swallowed it whole,
And his heart went pit-a-pat.

Then joyfully on his hinder-limbs
He assumes a buttful pose,
Then stood in a gentle revery,
Like a bard in a popped doze,
And wriggled his tail and blinked his eyes
And twisted his purple nose.

"Oh, I can the boot and oyster-can,
And the old hoop-skirt digest !"
Just then he jumped ten feet off the ground
With a motion of vague unrest :
He suddenly felt that that white felt hat
Was a raging hornet's nest.

Puck.

A German who was asked if lager beer was intoxicating, replied: "Vell, I trinks from seventy to eighty glasses a day, and I feels all straight in my upper story for any kind of beesiness; but I can't tell vat it would do mit men vat makes a swill-tub of himself."

A REALIST.

MISS CRIBBLETON (*questioning old sailor, with a view to "copy" for her thrilling novel in the Mayfair Magazine*): "Dear me! What a dreadful shipwreck! And how did you feel when the billows were breaking over you?"

OLD SALT: "Wet, marm — verry wet."
[*She gives him up.*]

It is said that Dr. McCosh, of Princeton, was the man who ventured to remonstrate with Dr. Mary Walker on the eccentricity of wearing trousers; but when Dr. Mary replied that she would wear them or nothing, poor Dr. McCosh blushing retired.



"Say, Dan, let's go in and get a kilt suit." — G.

THE WIDOW.

Her smiles are tempered by her sighs;
Her garb scarce covers her glory;
The tender glamour of her eyes
Enshrines her and her story.

No greenling girl, no spinster tart,
She's all things that become her;
Her life, her beauty, and her heart
Are in their Indian summer.

The golden fleece — A plumber's bill. — *Puck*.

RISEING YOUNG SCULPTOR (to country uncle).
". Now, for instance, uncle, in this
rough block of marble I can behold a form of
exquisite beauty!" COUNTRY UNCLE: "Well,
Geawge, ain't there danger of your spilin' it in
cuttin' it out." — *New York Graphic*.

Mr. Keely announces "that, if he lives an-
other year, his motor will be complete." Hope
is eternal, but not the stockholder's money.

STABLE KEEPER. "By the way, shall I put in
an extra buffalo?" ENGLISH BLOOD. "Could
n't you let me 'ave an 'orse, you know? Er-er
— rather not drive a buffalo first time, you
know." — *Spectator*.

"Now, darling, will you grant me one favor
before I go?" "Yes, George, I will," she
said, drooping her eyelashes and getting her lips
in shape. "What is the favor I can grant you?"
"Only a little song on the piano, love. I am
afraid there is a dog outside waiting for me, and
I want to scare him away." — *Philadelphia Call*.

"Do you see that young man going along
there?" "Yes; what of it?" "He's got a
girl on the brain." "Ah, judging from appear-
ances, she must have a soft seat." — *Ex*.

Oscar Wilde asserts that his poetry will be
read when Shakespeare is forgotten. Possibly,
but not before. — *Philadelphia Chronicle*.

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The *Argonaut* states that "Professors are forced by the Russian government to say nothing about history, philosophy, or economics. A translator of Mill was recently banished to Siberia." Is it possible that this state of things exists?

What a curious way the *Chronicle* has of making two clippings out of one. Thus, in the last issue, it quotes the *Lampoon* : —

"Barber (consolingly). Oh, well, sir, ten cents a year ain't much of a 'shaving.'"

Then follows half a column or more, at the end of which comes : —

"Student (to Parker House barber). What! twenty cents for a shave? Why, I can get shaved in Cambridge twice for twenty cents."

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Besides the above distinctly professional courses, the Institute offers scientific courses of a less technical character, designed to give students a preparation for business callings. A four-years' course in biology, chemistry, and physics has been established, as preparatory to the professional study of medicine.

Modern languages are taught so far as is needed for the ready and accurate reading of scientific works and periodicals, and may be further pursued as a means of general training.

The constitutional and political history of England and the United States, political economy, and international law are taught, in a measure, to the students of all regular courses.

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A clear admission paper from any college of recognized character will be accepted as evidence of preparation, in place of an examination.

Graduates of colleges conferring degrees are presumed to have the necessary qualifications for entering the third-year class in any of the regular courses of the Institute, and will be so admitted provisionally, on the presentation of their diplomas.

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Surveying instruments are provided for field work in civil and topographical engineering. Extensive shops have been fitted up for the use of both hand and machine tools; and a laboratory of steam engineering has been established as a part of the instruction in mechanical engineering. Several steam boilers and steam engines of various types are available for experiments and tests. The department of mining engineering and metallurgy has the use of laboratories in which the milling and smelting of lead, copper, silver, and other ores, in economic quantities, are regularly performed by the students themselves. The classes in architecture supplement the work of the drawing and designing rooms by the examination of structures completed or in course of erection, and by practical experiment in the laboratory of applied mechanics, testing the strength of materials and working out problems in construction. The Kidder Chemical Laboratories, just completed, contain desks for four hundred and twenty-six students, and afford the best modern facilities for the study of general, analytical, and organic chemistry. The Rogers Physical Laboratory has been greatly extended in every department during the past year, especially in respect to facilities for instruction and research in electrical science.

On the successful completion of any one of the four-year courses of the Institute, a degree of bachelor of science will be conferred. The Institute is also empowered to confer the degree of doctor of science. Special students are allowed to enter special divisions of any of the courses, on giving evidence that they are prepared to pursue with advantage the studies selected.

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Divorce sensations are becoming so numerous in the papers that it looks like a studied effort on the part of the press to intimidate the girls during leap year.

There is a rumor at Harvard that this is to be the last year of compulsory attendance at prayer. But every student who refuses to join the base-ball and boating clubs will be fined five hundred dollars, and fired out of the institution. — *Puck*.

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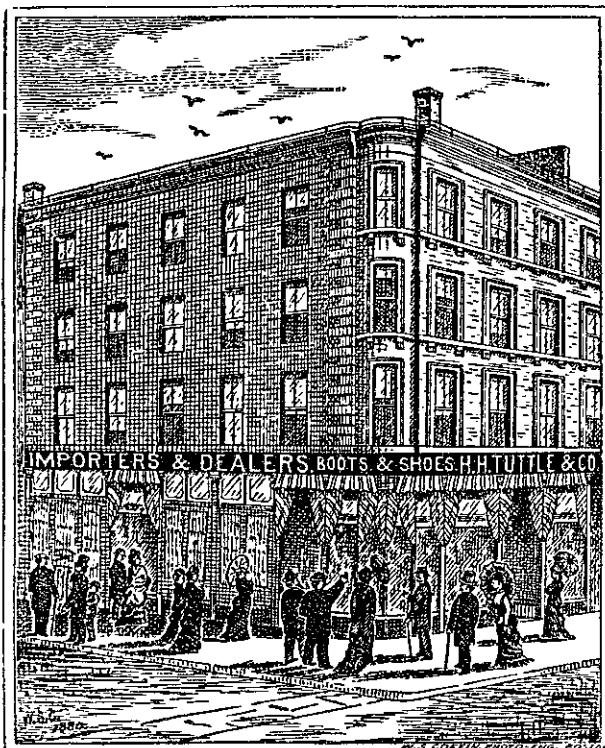
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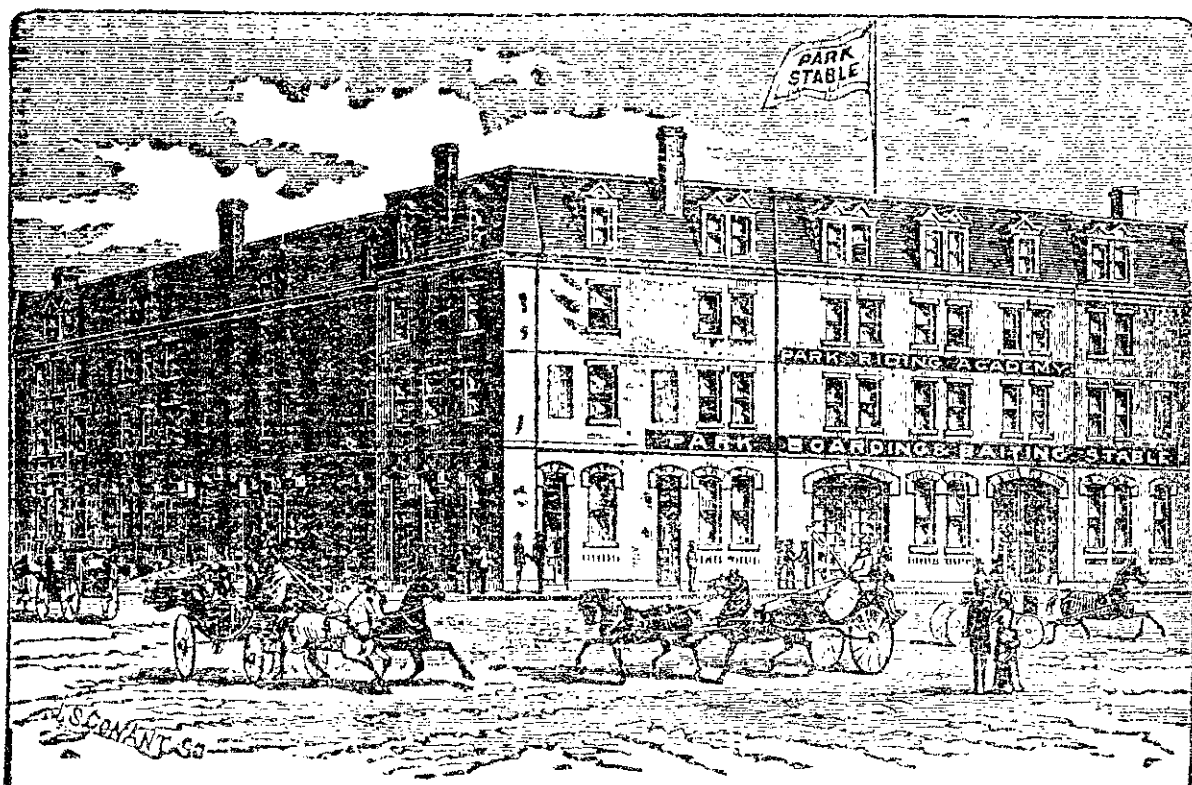
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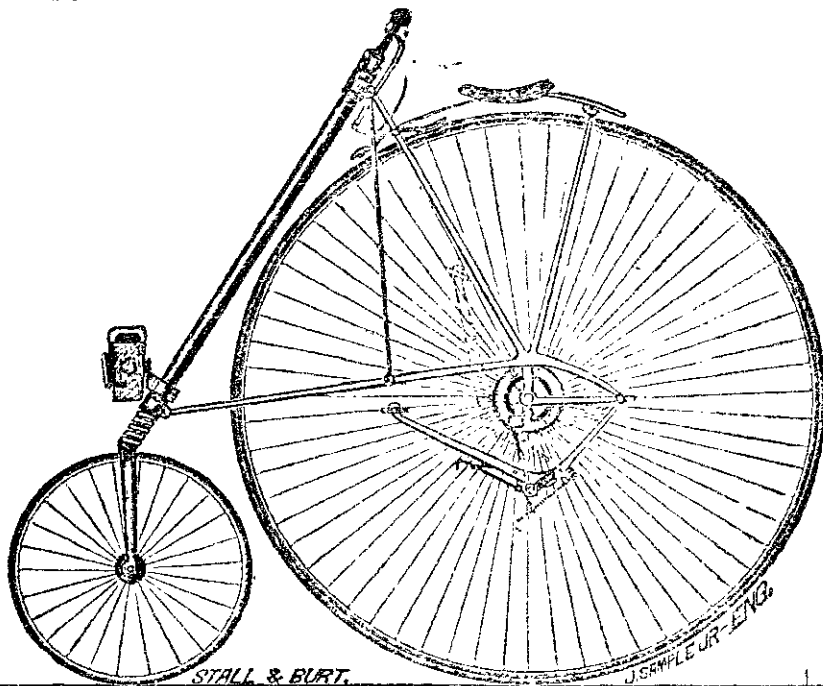
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